ARCHER®

TECHNICAL DATA

AN EXCLUSIVE RADIO SHACK SERVICE TO THE EXPERIMENTER

FIBER OPTICS COMMUNICATIONS DATA SYSTEM

MFOE71 - MFOD72 Infrared Emitting Diode and Detector

INTRODUCTION

Explore the frontier of fiber optics data communications with the low cost Archer® fiber optic emitter — MFOE71 and matching detector MFOD72 pair.

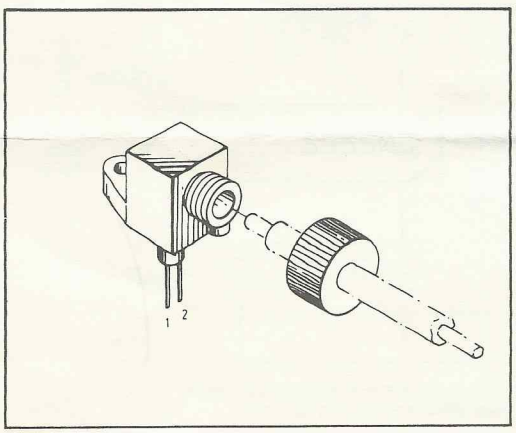
The emitter and detector incorporate integrated connectors which may be terminated to low-loss 1000 micron plastic fiber optics cable (such as Archer Cat. No. 276-228.)

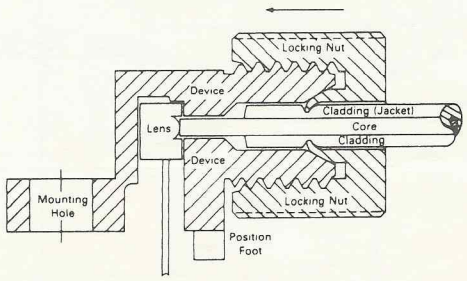
ASSEMBLY INSTRUCTIONS

1. Using a single-edge razor blade, strip the protective fiber jacket (cladding) back to expose about 1/2 inch of bare fiber core. Caution: avoid nicking the fiber core.

2. Scribe the exposed fiber core around its circumference using the razor blade so as to leave 1/8 inch of the core extending beyond the jacket. The permissable length is 0.100 to 0.180 inch. Break off the extra core with your fingers.

3. Loosen the cable clamping nut on each of the respective devices. The nut may remain mated to the device. Slip the optical fiber through the clamping nut connector and guide it into the unit until the tip of the core seats against the internal molded lens assembly. Tighten the connector clamping nut for a snug fit. Do not overtighten. The transmission fiber will be locked into place and ready for use.





	1	2
E71	Anode	Cathode
D72	Emitter	Collector

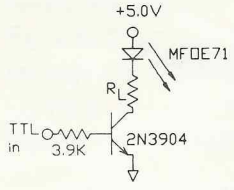
CUSTOM PACKAGED IN USA BY RADIO SHACK, A DIVISION OF TANDY CORPORATION

TYPICAL DEMONSTRATION CIRCUITS

DATA TRANSMISSION

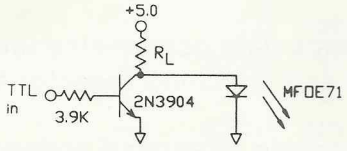
Suitable for computer to computer, computer to peripheral and logic to logic optical fiber links.

TTL TRANSMITTERS **TTL RECEIVER**

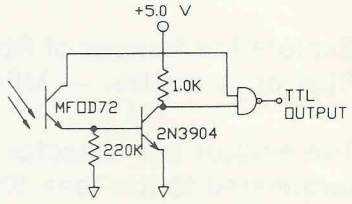


NONINVERTING

I_F	R_L
10 mA	330
50mH	68
100 mH	33



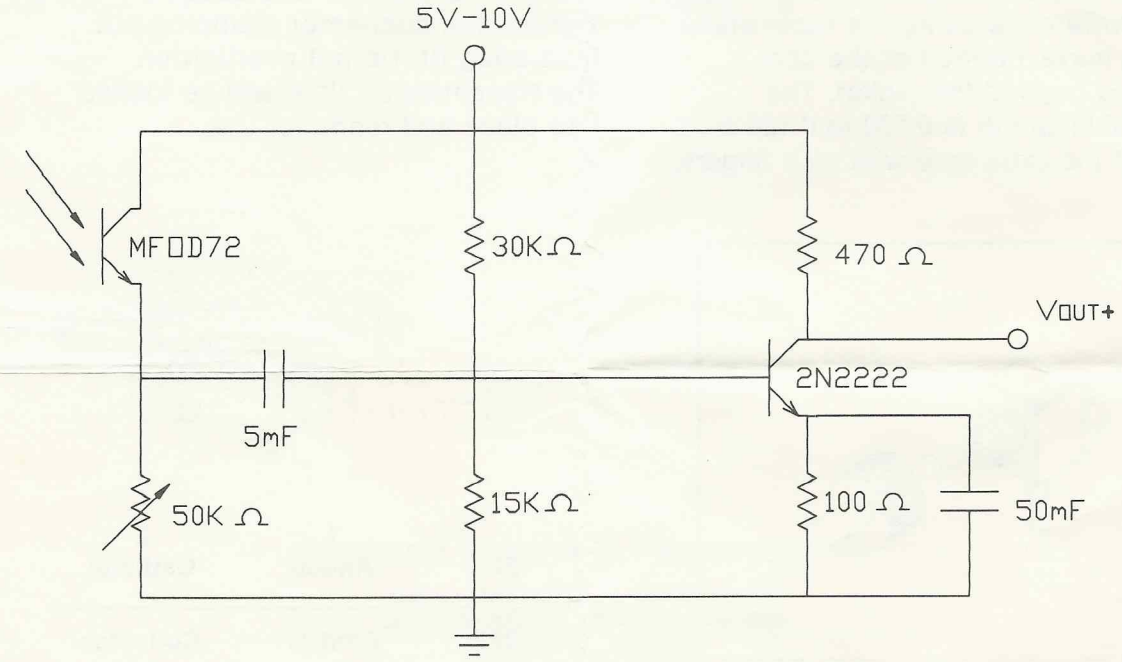
INVERTING



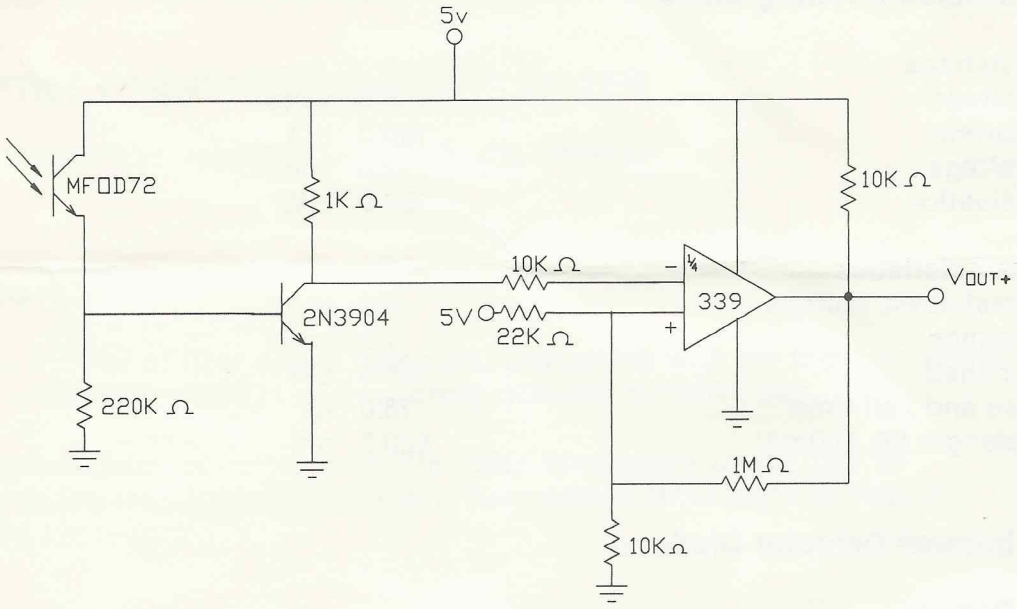
5.0 kHz TRANSISTOR RECEIVER

VOICE TRANSMITTER AND RECEIVER

Refer to Getting Started in Electronics by Forrest M. Mims III, Radio Shack Cat. No. 276-5003. Pages 122-123 detail the schematics of a Lightwave Voice Transmitter and Receiver. Merely substitute MFOE71 for the infrared LED and MFOD72 for the phototransistor Q1.



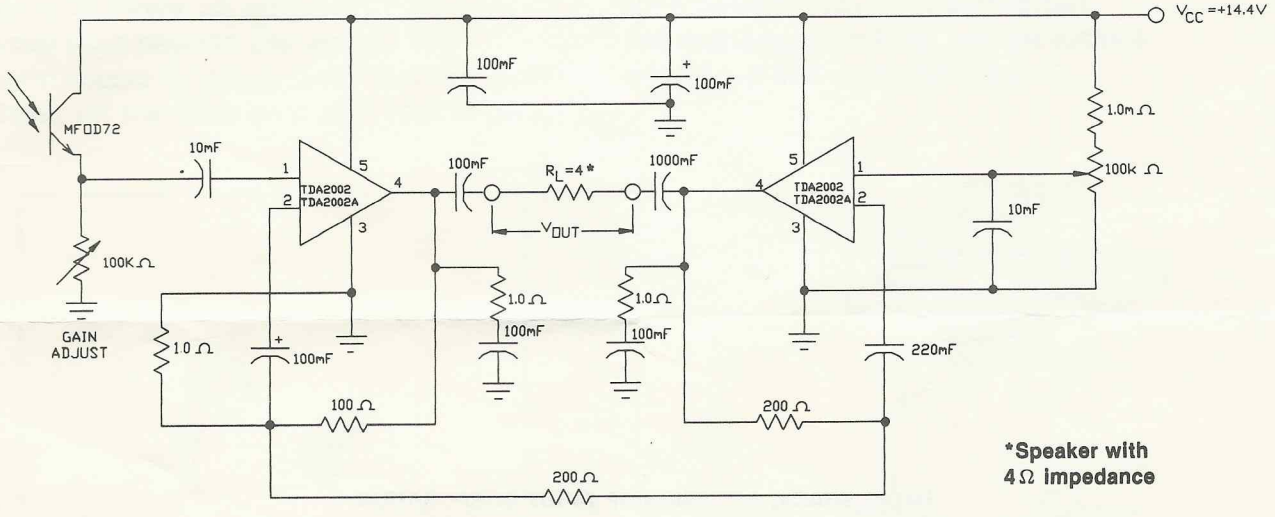
SMALL SIGNAL AMPLIFIER



DIGITAL TO ANALOG CONVERTER

15 WATT APPLICATION CIRCUIT

(Typical Bridge Configuration)



Note: The TDA2002, A is not compensated for operation with a closed loop gain of 20 or less. Operation below a gain of 20 may cause stability problems.

SPECIFICATIONS

MFOE71 Infrared-Emitting Diode

Maximum Ratings

Reverse Voltage	6.0	volts
Forward Current	150.0	mA
Forward Voltage	2.0	volts
Power Dissipation	150.0	mW

Typical Characteristics

Reverse Breakdown Voltage	4.0	volts
Forward Voltage	1.5	volts
Power Launched	165.0	uW
Optical Rise and Fall time	25.0	ns
Peak Wavelength (@ 100mA)	820.0	nm

MFOD72 Infrared-Detector Diode

Maximum Ratings

Collector-Emitter Voltage	30.0	volts
Power Dissipation	150.0	mW
Collector Dark Current	100.0	nA
Saturation Voltage	0.4	volts

Typical Characteristics

Responsivity (@ 5 V)	125	uA/uW
Saturation Voltage	0.25	volts
Turn-on Time	10.0	us
Turn-off Time	60.0	us

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